

Work Order ID 131711

Tuesday, April 21, 2015 1:47:26 PM

131711

Page 1

Item ID: D3443-7 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Tubing
Start Date: 4/24/15 Start Qty: 4.00 ***4*** Cust Item ID:
Required Date: 4/24/15 Req'd Qty: 4.00 ***4*** Customer:
Reference:

Approvals: Process Plan: MLJ Date: 1504-23 Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D3443	Rev C								

100		0.00							
100	NC BRAKE								
Brake NC	Memo	0.00							
Brake NC	1- Form as per Dwg D3443 using DT81172- Deburr per dwg D3443								
	CUT 0.100" LONGER								
110		0.00							
110	Small Fab								
Small Fab	Memo	0.00							
Small Fab	GRIND RAD PER DWG								
120		0.00							
120	QC5- Inspect part completeness to step on W/O								
QC	Memo	0.00							
Quality Control									

MAY 19 2015

DQA:

Lot

Date:

15/06/08

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed:

REP

Date:

15/05/28Work Order update only ☐

Work Order: <u>131 711</u>		DISPOSITION		AGAINST DEPARTMENT/PROCESS							
Part No. <u>03443-7</u>		Rework ☐		Skid-tube ☐		Cross tube ☐		Water Jet ☐		Engineering ☐	
NCR No. <u>15-5032</u>		Scrap ☒		Machining ☒		Small Fab ☐		Prod. Eng. Coord. ☐		Quality ☐	
		Use-as-is ☐		Thermoforming ☐		Finishing ☐		Rec/Store/Packaging ☐		Other ☐	
		Suspected Unapproved ☐		Large Fab ☐		Composite ☐		Supplier ☐			
Date: <u>15/5/20</u>		Step #: <u>130</u>		QTY Effective: <u>1</u>				MRB (QSI042) Approval DAS 12 9-89 <u>15/5/20</u>			
Description Work Order Deviation				Disposition				Completed By			
Qty (1) strut is too short by 0.1", hole edge distance is 0.45 P.C. operator				SCRAP. & destroy no replace				J.C. - <u>15/05/20</u>			
								Lead hand / Supervisor Approval Verification <u>15/05/20</u>			
								QC / QA Coordinator Approval DAS 9 9-89 <u>15-05-20</u>			
Root Cause				FAULT CATEGORY							
Environment ☐	☒ No Re-verification	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐						
Design ☐	☒ Operator	Bending ☐	Set-up ☐	Folio/Program ☐	☒ Outside Dimensions						
Doc/Data ☐	☐ Offset/Setup	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	☒ Over/Under tolerance						
Equip/Tooling ☐	☐ Supplier	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	☐ Part Incorrect						
Handling/Pre ☐	☐ Training	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	☐ Part Lost/Missing						
Material ☐	☐ Use for Testing	Cuffs ☐	Contamination ☐	Out of Sequence ☐	☐ Part Moved						
Internal Transport ☐	☐ Poor Information	Crushing ☐	Countersink ☐	Off-set ☐	☐ Drawing						
Tribal Knowledge ☐	☐ Rushing	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	☐ Finish						
LOA ☐	☐ Product Improvement	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	☒ Misread						
Substation ☐	☐ Process Improvement	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	☐ Turning Sequence						
Past Expiry Date ☐	☐ Manufacturing Process										
Misidentified ☐	☐ Past Due	OTHER :									

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Revision ID:

Stop ***NS2***

Item Name: Tubing

Start Date: 4/24/15

Start Qty: 4.00

4

Cust Item ID:

Required Date: 4/24/15

Req'd Qty: 4.00

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Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool # Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

130

130

Mill Conv

CONVENTIONAL MILLING MACHINE

0.00

Memo

0.00

Conventional Milling Machine

1- Mill end to length and drill hole as per dwg D34432-Deburr as per dwg D3443

9 2 J.C. L. 15/05/20**P.T.O.**

(✓2)

140

140

QC

QC2- Inspect parts off machine FAI/FAIB

0.00

Memo

0.00

Quality Control

9 2 J.C. L. 15/05/20

150

150

QC

QC8- Inspect parts - second check

0.00

Memo

0.00

Quality Control

3 2 DAS
44 15/05/20
9-89

DQA:

Date:

15/06/06



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed:

Date:

15/05/29

Work Order update only ☐

Work Order: <u>131711</u> Part No. <u>03443-7</u> NCR No. <u>15-5035</u>		DISPOSITION Rework ☒ Scrap ☒ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%;"> <tr> <td>Skid-tube ☐</td> <td>Cross tube ☐</td> <td>Water Jet ☐</td> <td>Engineering ☐</td> </tr> <tr> <td>Machining ☒</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>				Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☒	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																																			
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Page 3

Item ID: D3443-7

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Tubing

Start Date: 4/24/15

Start Qty: 4.00

4

Cust Item ID:

Required Date: 4/24/15

Req'd Qty: 4.00

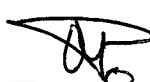
4

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160	Identify as per dwg & Stock Location: <u>WA002</u>	0.00				3			MAY 25 2015
160									
Packaging	Memo	0.00							
Packaging									
170	QC21- Final Inspection - Work Order Release	0.00							
170									
QC	Memo	0.00							
Quality Control									

MLJ MAY 26 2015

MLJ MAY 26 2015

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

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Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐																																																																				
Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐																																																																				
Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐																																																																				
Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐																																																																				
Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐																																																																				
Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐																																																																				
Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐																																																																				
Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐																																																																				
Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐																																																																				
OTHER :																																																																							

Tuesday, April 21, 2015 1:47:26 PM

Page 1

131711

D3443-7

Required Date: 4/24/15

Required Qty: 4.00

Comments: A05.11.14New issueEC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M304TR0.750W.120		Purchased	No			100	f	36.9170	0.75	4			
M304TR0 750W 120									**			DAS 28 9-89	MAY 12 2015
304 ss round tube .750 x .120w													
				<u>Location</u>				<u>Loc Qty</u>		<u>Loc Code</u>			
				GA002				36.917					
				m130071				36.917					

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QS1042) Approval	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor Approval Verification		
			QC / QA Coordinator Approval		
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐			FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐		
OTHER : _____					

DQA: _____ Date: _____

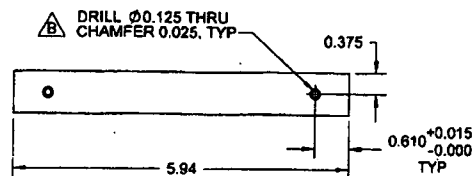


WORK ORDER NON-CONFORMANCE / UPDATE

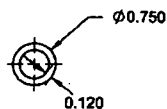
QA Closed: _____ Date: _____

Work Order update only ☐

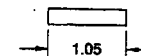
Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					



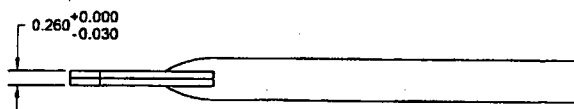
D3443-5 TUBING



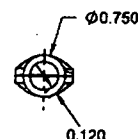
$\phi 0.210^{+0.005}_{-0.010}$



D3443-9 PIN



D3443-7 TUBING



- D3443-9 NOTES:**
- 1) MATERIAL: DELRIN II 150R OR ACETRON GP ACETAL (REF. DART SPEC M-DELRIN-R)
 - 2) FINISH: NONE
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
 - 6) IDENTIFICATION: NONE
 - 7) WEIGHT: N/A

- D3443-5/7 NOTES:**
- 1) MATERIAL: AISI 316/304 SS SEAMLESS TUBING (REF. DART SPEC M304TR0.750W.120)
 - 2) FINISH: NONE
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: 0.005 TO 0.025 MAX
 - 6) IDENTIFICATION: NONE
 - 7) WEIGHT: D3443-5 = 0.41 lbs
D3443-7 = 0.62 lbs

RELEASED
01/27/25 JMD

DESIGN	RF	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	RF	DRAWING NO.	REV. C
MFG. APPR.	<i>[Signature]</i>	D3443	SHEET 4 OF 4
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	STRUT WELDMENT ASSEMBLY NTS	
DATE	09.06.25	COPYRIGHT © 2005 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL. IT IS SUPPLIED ON THE EXPRESS UNDERSTANDING THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMERCIALIZED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	